



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/585,984

07/18/2007

Lori Anne Gardi

8844-33 MMC

3255

24223 7590 12/24/2008

SIM & MCBURNEY
330 UNIVERSITY AVENUE
6TH FLOOR
TORONTO, ON M5G 1R7
CANADA

EXAMINER

CHAO, ELMER M

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

12/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/585,984	Applicant(s) GARDI ET AL.	
	Examiner ELMER CHAO	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The informal drawings are not of sufficient quality to permit examination. Accordingly, replacement drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to this Office action. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.
2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the figures contain faded drawings, hand-drawn drawings, and blurred/illegible drawings. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
4. **Claims 1-12 and 16-25** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The method claims are directed to

Art Unit: 3737

a non-statutory process because the steps recited are purely mental steps. This rejection may be overcome by clearly and specifically tying the method to a product or apparatus by positively reciting the product or apparatus or by positively reciting subject matter that has undergone physical transformation.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. **Claim 1, 2, 4-6, 10-17, 26, 27, 30, and 31** are rejected under 35 U.S.C. 102(a) as being anticipated by Kagermeier et al. (U.S. 2003/0225325 A1).

Regarding **claims 1, 2, 4-6, 12, 16, and 17**, Kagermeier et al. teach a method of registering the position of an object moving in a target volume in an ultrasound imaging system (para [0003], refer to ultrasound tomography), comprising: capturing a first 2D or 3D (para [0011], refer to 'at least two axis') ultrasound image of a target volume (para [0038], refer to 'image A'); capturing a second 2D or 3D ultrasound image of said target volume (para [0038], refer to 'image B'); and identifying the position of said object in said object in said target volume using a difference map between said first and second ultrasound images (para [0038], refer to 'difference image' and 'position').

Regarding **claim 10**, the first ultrasound image is captured before the entry of the object in the volume (para [0023], refer to 'previous session', the first image would be taken before the patient enters the volume for the second session).

Regarding **claim 11**, the first and second images are not consecutive since repositioning and other steps are performed between the images (abstract).

Regarding **claims 13-15, 26, 27, 30, and 31**, Kagermeier et al. teach the system which is capable of performing all of the functional limitations as recited in the claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 3 and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kagermeier et al. in view of Schneider (U.S. 6,310,477 B1). Kagermeier et al. teach the limitations as discussed above but fail to explicitly teach thresholding the difference image. However, in the field of medical difference imaging, Schneider teaches thresholding difference images (col. 5, lines 19-36). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include using a threshold on the difference image in order to identify a selected object (for motivation see col. 5, lines 31-36).

9. **Claims 8, 9, and 18-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kagermeier et al. in view of Schneider, further in view of Lee et al. (U.S. 2003/0135119 A1).

Regarding **claims 8 and 18-21**, Kagermeier et al. and Schneider teach the limitations as discussed above but fail to explicitly teach the object being a needle. However, in the field of ultrasound imaging, Lee et al. teach using ultrasound to image a needle (abstract). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include imaging a needle in order to position the needle at a target location (for motivation see para [0030]).

Regarding **claim 9**, Schneider's teaching of providing a threshold is a form of filtering for the difference image.

10. **Claims 12, 16, 22-25, 28, and 29**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kagermeier et al.

Regarding **claims 12 and 16**, Kagermeier et al. teach the limitations as discussed above but may fail to explicitly teach determining a segment of an operational scan range. However, in the field ultrasound imaging, it is well understood that every B-mode imaging probe has a field with varying quality differences. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to determine and place the ultrasound probe such that the target area of observation lies in the probe field with the highest quality in order to obtain better imaging results for the given procedure.

Regarding **claims 22 and 23**, Kagermeier et al. teach the limitations as discussed above but fail to explicitly teach using a rotational transducer with a greater scan density at the site. However, rotational transducers are a well-known type of probe for B-mode imaging. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include using a rotational transducer to perform the imaging in order to provide a cost-effective and simple imaging system.

Regarding **claims 24 and 25**, Kagermeier et al. teach the limitations as discussed above but fail to explicitly teach capturing image data in the segment at a greater density. However, capturing image data at a particular site at a greater density is well-known. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include capture image data in the segment at a greater density to obtain a better resolution for the segment without spending more time than necessary for the areas outside the segment.

Regarding **claims 28 and 29**, Kagermeier et al. teach the system which is capable of performing all of the functional limitations as recited in the claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELMER CHAO whose telephone number is (571)272-0674. The examiner can normally be reached on 9am-4pm.

Art Unit: 3737

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. C./
Examiner, Art Unit 3737
12/22/2008

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768